

AMENDMENT UNDER 37 C.F.R. §1.111
U.S. APPLN. NO.: 09/492,300

REMARKS

Claims 1-37 are pending in the application. By this Amendment, new claims 30-37 are added.

Claims 1-15, 17-22 and 24-29 are rejected. Claims 1 is rejected under 35 U.S.C. § 102(e) as being anticipated by Beeteson (U.S. Patent No. 5,796,382; hereinafter “Beeteson”). Claims 2-7, 10, 12, 13, 18 and 28 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Beeteson in view of Ito (U.S. Patent No. 6,144,164; hereinafter “Ito”). Claims 20, 21 and 27 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Beeteson in view of Reinhardt (U.S. Patent No. 5,598,565; hereinafter “Reinhardt”). Claims 8, 9, 25 and 26 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Beeteson in view of Ito and further in view of Tew et al. (U.S. Patent No. 6,232,963; hereinafter “Tew”). Claim 11 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Beeteson in view of Ito and further in view of Saito et al. (U.S. Patent No. 5,315,695; hereinafter “Saito”). Claims 14-15, 17 and 29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Beeteson in view of Ito and Reinhardt and further in view of Iwamoto et al. (U.S. Patent No. 6,532,474; hereinafter “Iwamoto”). Claims 19 and 24 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Beeteson in view of Ito and further in view of Hoshi (U.S. Patent No. 6,020,944; hereinafter “Hoshi”). Claims 22 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Beeteson in view of Ito and further in view of Vara et al. (U.S. Patent No. 6,063,030; hereinafter “Vara”). Claims 16 and 23 are objected to as being dependent upon a rejected base claims but would be allowable if rewritten in independent form. Applicant adds the new claims to further define the invention and submits the arguments below in traversal of the claim rejections.

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As a preliminary matter, Applicant requests the Examiner to clarify the rejection of dependent claims 10-15, 20, 21 and 27. The rejections of the aforementioned claims do not include all the references which were cited the rejection of claim 3 (from which claim 27 depends from), claim 8 (from which claims 10-15 depend from) and claim 18 (from which claims 20 and 21 depend from). For example, claim 3 is rejected under Beeteson and Ito, but claim 27, which depends from claim 3, is listed as being rejected under Beeteson and Reinhardt, only.

In the next Office Action, Applicant requests the Examiner to consider and initial the references cited in the Information Disclosure Statement filed on June 8, 2005.

Rejection of claim 1 under § 102(e) by Beeteson

Applicant respectfully submits that claim 1 is patentable because Beeteson fails to teach, suggest or provide motivation for the at least two sets of maximum luminance including an image maximum luminance and an ordinary maximum luminance.

Beeteson discloses the selective illumination of backlight lamps, i.e., only one of four lamps is illuminated and the other three lamps are turned *off*. See col. 2, lines 48-53. In other words, Beeteson teaches the illumination of a portion of the screen corresponding to where the illuminated lamp is located. As a result, Beeteson does not distinguish whether a portion of the screen is displaying an image or a non-image information to determine the illumination level. Therefore, Beeteson cannot possibly disclose an image maximum luminance for displaying an image and an ordinary maximum luminance for displaying non-image information.

For at least the above reasons, claim 1 is patentable.

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Rejection of claims 2-7, 10, 12, 13, 18 and 28 under § 103(a) as being unpatentable over Beeteson in view of Ito

Claims 2-7, 18 and 28, which depend from claim 1, are patentable for at least the reasons submitted for claim 1 and because Ito does not make up for the deficiencies of Beeteson.

Claims 10, 12 and 13, which ultimately depend from base claim 8, are patentable for the reasons presented below for claim 8.

Rejection of claims 20, 21 and 27 under § 103(a) over Beeteson in view of Reinhardt

Claims 20, 21 and 27, which ultimately depend from claim 1, are patentable for at least the reasons submitted for claim 1 and because Reinhardt does not make up for the deficiencies of Beeteson.

Rejection of claims 8, 9, 25 and 26 under § 103(a) over Beeteson in view of Ito and further in view of Tew

Claims 8, 25 and 26, which depend from claim 1, are patentable for at least the reasons submitted for claim 1 and because Ito and Tew fail to make up for the deficiencies of Beeteson.

Applicant submits that claim 8 is also patentable because Beeteson in view of Ito and Tew fail to teach, suggest, or provide motivation for a display device wherein the image is displayed at a maximum luminance level for the display represented by n bits and wherein the non-image information is displayed at a maximum level represented by less than n bits.

Further, claim 25 is patentable because the combination of Beeteson, Ito, and Tew fail to teach, suggest, or provide motivation for a display device wherein a brightness of a display of the non-image information at the ordinary maximum luminance is reduced to a value about equal to an eighth or less than an eighth of a brightness of a display of the image.

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In the Office Action, the Examiner concedes that Beeteson and Ito do not teach that the image is displayed at a maximum luminance level for the display represented by n bits and wherein the non-image information is displayed at a maximum level represented by less than n bits. The Examiner, however, states that Tew teaches greater bit-weights displayed with more illumination than bit-planes having smaller bit-weights.

Tew discloses in Fig. 2, a waveform for a 4-bit pixel data. Each bit of the 4-bit pixel data corresponds to a time interval with a specific weight assigned to that time interval. *See* col. 5, line 29-42. Each of the time intervals is a bit plane. *See* col. 5, line 63 – col. 6, line 4. For example, the 0-t1 time interval, or bit plane, has a bit weight of A, while the t2-t3 time interval has the bit weight of a2. Therefore, the 0-t1 bit plane has a greater bit weight than the t2-t3 bit plane, and thus, the 0-t1 bit plane has illumination of greater intensity than the t2-t3 bit plane. *See* col. 6, lines 53-56.

Each bit plane, however, has a 1-bit value of being either 0=off or 1=on. *See* col. 5, line 66 – col. 6, line 1. In other words, the greatest bit weight would be represented by 1-bit and the smaller-bit weights would also be represented by 1-bit. Therefore, Tew does not teach or suggest a display device wherein the image is displayed at a maximum luminance level for the display represented by n bits and wherein the non-image information is displayed at a maximum level represented by less than n bits.

Claims 9, 10, 12, 13, which depend from claim 8, are patentable for at least the reasons submitted for claim 8.

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Rejection of claim 11 under § 103(a) over Beeteson in view of Ito and further in view of Saito

Claim 11, which depends from claim 8, is patentable for at least the reasons submitted for claim 8 and because Saito fails to make up for the deficiencies of Beeteson and Ito.

Rejection of claims 14-15, 17 and 29 under § 103(a) over Beeteson in view of Ito and Reinhardt and further in view of Iwamoto

Claims 14 and 15 which ultimately depend from claim 8, are patentable for at least the reasons submitted for claim 8 and because Beeteson, Ito, Reinhardt and Iwamoto fail to make up for the deficiencies noted in claim 8.

Claims 17 and 29, which ultimately depend from claim 1, are patentable for at least the reasons submitted for claim 1 and because Beeteson, Ito, Reinhardt and Iwamoto fail to make up for the deficiencies noted in claim 1.

Rejection of claims 19 and 24 under § 103(a) over Beeteson in view of Ito and further in view of Hoshi

Claims 19 and 24, which depend from claim 1, are patentable for at least the reasons submitted for claim 1 and because Ito and Hoshi fail to make up for the deficiencies of Beeteson.

In addition, claim 19 is patentable because Hoshi fails to teach, suggest or provide motivation for a display device wherein the image maximum luminance is substantially in the range of $400 \text{ cd/m}^2 - 10,000 \text{ cd/m}^2$ and the ordinary maximum luminance is substantially in the range of $40 \text{ cd/m}^2 - 400 \text{ cd/m}^2$.

Rather, Hoshi merely teaches having “a high-luminance illumination device on the order of several thousands cd/m^2 .” Col. 2, lines 28-30. The high-luminance illumination device is necessary because out of the several thousands cd/m^2 , only a luminance of $80-120 \text{ cd/m}^2$ is

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transmitted through a TFT-panel of low transmittance. *See* col. 2, lines 23-30. Therefore, it is not possible for the device disclosed by Hoshi to have an image maximum luminance substantially in the range of 400 cd/m² - 10,000 cd/m² because of the low transmissivity of the TFT-panel.

Rejection of claims 22 under § 103(a) over Beeteson in view of Ito and further in view of Vara

Claim 22, which depends from claim 1, is patentable for at least the reasons submitted for Beeteson and because Ito and Vara fail to make up for the deficiencies of Beeteson.

Applicant adds new claims 30-37 for improved clarity and submit that the new claims are fully supported in the specification. The new claims 30-37 are patentable for at least the reasons submitted in their respective base claims.

New claim 35 is further patentable over Beeteson because Beeteson fails to teach, suggest or provide motivation for a display device wherein said display device is operable to simultaneously display the image at the image maximum luminance and the non-image information at the ordinary maximum luminance and a visibility of the non-image information is not reduced when displayed at the ordinary maximum luminance.

In addition, new claim 36 is patentable because the references cited by the Examiner do not teach, suggest or provide motivation for a display device, wherein said image that is displayed at the maximum luminance level is a medical image for medical diagnostic, and said display device is a medical image display device for a medical diagnostic apparatus.

New claim 37 is also patentable because the references cited by the Examiner do not teach, suggest or provide motivation for a display device, wherein, if a size of said image being

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displayed is so small that there occurs a blank area in an image-assigned region, said blank area is rendered in black in order to enhance the visibility of said image.

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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